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FLOOD INSURANCE STUDY

CITY OF AGOURA HILLS, CALIFORNIA
LOS ANGELES COUNTY

MARCH 4, 1986

Federal Emergency Management Agency

COMMUNITY NUMBER - 065072

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FLOOD INSURANCE STUDY

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the City of Agoura Hills, Los Angeles County, California, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study will be used to convert Agoura Hills to the regular program of flood insurance by the Federal Emergency Management Agency (FEMA). Local and regional planners will use this study in their efforts to promote sound flood plain management.

This Flood Insurance Study was prepared by compiling existing hydrologic and hydraulic technical and scientific data prepared by other organization(s) originally for purposes other than the National Flood Insurance Program (NFIP). The data were identified as the best available at the time of compilation of this Flood Insurance Study and should depict the general conditions of the flooding sources with relative accuracy. FEMA performed a cursory review and accepted the data as valid for purposes of this Flood Insurance Study and the NFIP. However, if better information is known to exist or has been developed since the date of this report, the information should be immediately forwarded to the address below for consideration for revision of this study.

> Natural and Technological Hazards Division, FEMA, Building 105, Presidio of San Francisco, San Francisco, California 94129.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than those on which this federally supported study is based. These criteria take precedence over the minimum Federal criteria for purposes of regulating development in the flood plain, as set forth in the Code of Federal Regulations at 44 CFR, 60.3(c). In such cases, however, it shall be understood that the State (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by the Los Angeles County Flood Control District, as reported in the Flood Insurance Study for Los Angeles County, California (Reference 1).

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1.3 Coordination

On January 26, 1984, Dames & Moore was instructed by FEMA to proceed with an existing data study for the City of Agoura Hills, California, using the detailed study data from the Los Angeles County, California, Flood Insurance Study.

In preparing the Los Angeles County, California, Flood Insurance Study, the California State Department of Water Resources, the U.S. Geological Survey, and the U.S. Army Corps of Engineers were contacted for information and data. In addition, the U.S. Soil Conservation Service and the Southern Pacific Transportation Company were also contacted.

In preparing this existing data study, the City of Agoura Hills was contacted for information regarding cultural features and existing conditions in the community.

The final community coordination meeting for this study was held on December 20, 1984, and was attended by representatives of FEMA, the study contractor, and the city. No problems were raised at the meeting.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated areas of the City of Agoura Hills, Los Angeles County, California. The area of study is shown on the Vicinity Map (Figure 1).

Flooding caused by Lindero Canyon was studied in detail from its confluence with Medea Creek upstream to the southern edge of Agoura Road and from Mainmast Drive upstream through the City of Agoura Hills. Medea Creek was studied in detail from a point approximately 400 feet downstream of Sideway Road, upstream to a point approximately 1,150 feet above Canwood Street. Cheseboro Creek was studied in detail from the southern edge of Driver Avenue to a point approximately 1,450 feet upstream of Driver Avenue. Palo Comado Creek was studied in detail from a point approximately 400 feet downstream of Balkins Drive to a point approximately 5,500 feet upstream.

The areas studied by detailed methods were selected based on the extent and validity of available hydrologic and hydraulic data.

Medea Creek was studied by approximate methods from a point approximately 1,150 feet upstream of Canwood street to the corporate limits.

Approximate analyses were used to study those areas having a low development potential or minimal flood hazards.

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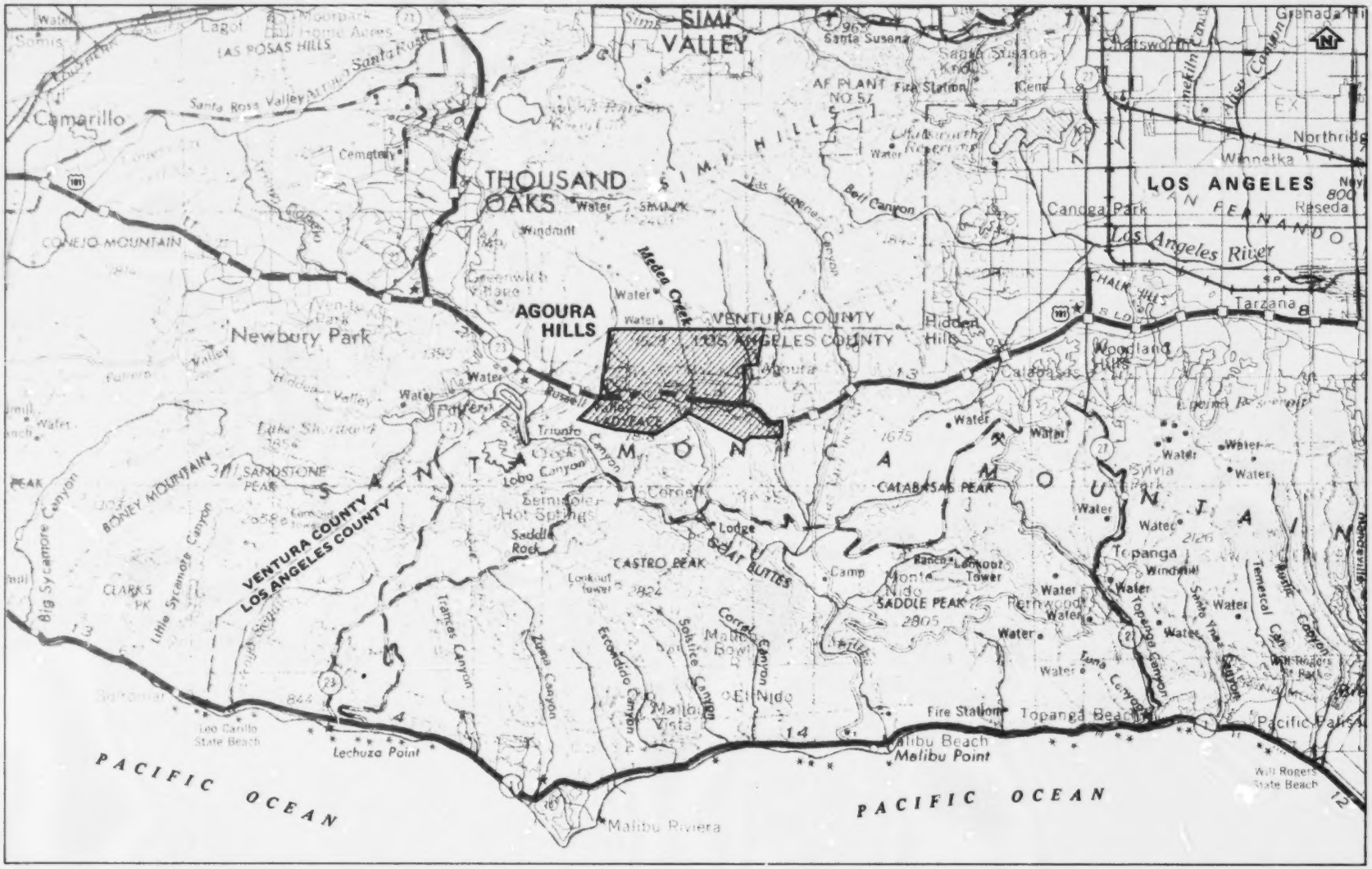

FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

APPROXIMATE SCALE

3 0 3 6 9 MILES

VICINITY MAP

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2.2 Community Description

The City of Agoura Hills is located in southwest Los Angeles County, in southwestern California, in a relatively flat basin between the Santa Monica Mountains and a cluster of hills separating it from Simi Valley. The City of Los Angeles is located approximately 6 miles to the east.

The City of Agoura Hills is bordered by unincorporated areas of Los Angeles County to the east, south, and west, and unincorporated areas of Ventura County to the north.

Current population figures from the 1983 census reports the population of the city at 20,200 with an estimated population of 25,000 to 30,000 by the year 2000.

The Agoura Hills area is bisected by a number of drainage courses including Las Virgenes Canyon, Liberty Canyon, Lindero Canyon, and Triunfo Canyon. The most prominent physical feature in the city is Ladyface Mountain, which at an elevation of 2,036 feet is visible from nearly all points in the Agoura Hills area. A prominent ridgeline runs along Ladyface Mountain for approximately 2 miles. Much of the terrain in the Santa Monica Mountains is rugged and steep. Elevations in the study area range from 600 feet to approximately 2,000 feet. The canyon bottoms are generally flat, with relatively abrupt transitions to canyon sides sloping at 25 percent to 35 percent from the bottom.

The soils in the Malibu/Santa Monica Mountains Plan area are highly susceptible to erosion. Slope stability hazards not only cause erosion, but erosion leads to problems of run-off and siltation. The top soils are termed expansive in nature.

Land development within the city ranges from low-density rural in Old Agoura to a higher density and urban development in the newer sections of the city.

There are several types of vegetation within the Agoura Hills area consisting of chaparral, coastal sage scrub, Bigleaf Maple, Western Sycamore, and Coast Live Oak. Grassland, characterized by herbs and native grasses, is also found in the area.

Most precipitation occurs during December through March. Precipitation during the summer is infrequent. The average rainfall is 17 inches a year.

2.3 Principal Flood Problems

The Los Angeles County Flood Control District indicates a history of flooding in the area from major storms in January 1934, March 1938, February 1941, January 1952, and January 1956 (Reference 2).

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Many flood control facilities have been constructed since these storms occurred. These facilities would have eliminated much of the damage which resulted from these storms. However, the more recent storms of January and February 1969 and February and March 1978 have demonstrated that Los Angeles County is still susceptible to flood disaster. Of particular concern are mudflows which frequently occur in the foothills during intense rainfall, usually following brush fires in the upstream watershed.

Damage from the 1969 storms was considerable in the Malibu area. Much of the damage occurred downstream of brush fire areas occurring in the summer of 1968. The Malibu area experienced damage to homes, bridges, and roads. Virtually all of the Flood Control District debris basins were filled to capacity. However, relatively few flood control facilities have been constructed in the area.

2.4 Flood Protection Measures

The major drainage systems in the western portion of the county are largely unimproved. Development in these areas, which includes the Malibu area, is far more sparse than in the Los Angeles basin. Although a few drainage systems have been constructed to protect portions of the existing development, lack of funding and environmental concerns make extensive flood control work unlikely. Therefore, for the foreseeable future, it appears that most future development will have to be protected from flood hazard by exercising sensible flood plain management. Current flood plain management measures include the reviewing of new developments before permits are issued.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for flood plain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the

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time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each flooding source studied in detail affecting the community.

Streams in the Malibu area that have Los Angeles County Flood Control District gage records sufficient for frequency analysis are Malibu Creek, Station F130-R; Zuma Creek, Station F53-R; and Topanga Canyon, Station F548-R. The peak flow rates were computed at these locations using log-Pearson Type III frequency analysis (Reference 3). Following this analysis, the peak flow rates were also computed using the Regional Runoff Frequency Equations developed by the Los Angeles County Flood Control District (Reference 4). These regional runoff frequency equations were developed through the multiple-linear regression analysis of the peak flow data of 48 gaging stations in Los Angeles County. Comparison of the results obtained indicated that the log-Pearson Type III analysis of the stream gages in the Malibu area produced higher peak flow rates than the Regional Runoff Frequency Equations. Therefore, the ratio of the flow rates predicted by the two methods was computed at each gage. Flow rates were then computed for the remaining points in the watershed by multiplying the regional equation flow rate by the appropriate ratio. The ratio used was determined by comparing the watershed being analyzed to those analyzed by the log-Pearson Type III analysis to determine which one was most similar.

Peak discharge-drainage areas relationships for the streams studied by detailed methods are shown in Table 1. The flow rates used in this study do not reflect the substantial amount of mud and debris flows which can be generated by a burned watershed. Therefore, it should be emphasized that the results of the study do not reflect the true degree of flood and mudflow hazard to the community.

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Peak discharges were routed through the area considering the capacities of existing flood control systems. Capacities of these systems were obtained from design records or were computed using Manning's Equation. Topographic and cross section data were compiled from existing topographic maps (References 5 through 7) and field surveys. Features which cause changes in flow depths such as changing ground slope or obstructions were considered in determining water-surface elevations.

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Table 1. Summary of Discharges

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (Cubic Feet per Second) 10-Year	50-Year	100-Year	500-Year
Lindero Canyon					
700 Feet Downstream of Thousand Oaks Boulevard	4.1	1,369	3,024	3,858	6,037
At Reyes Adobe Road	3.4	1,290	2,847	3,632	5,685
Medea Creek					
975 Feet Upstream of Canwood Street	6.3	2,558	5,647	7,204	11,272
Cheseboro Creek					
1,100 Feet Upstream of Driver Avenue	7.6	2,169	4,779	6,088	9,551
Palo Comado Creek					
At Fairview Place	3.5	1,074	2,374	3,028	4,738

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Roughness coefficients (Manning's "n") were estimated by field inspection of the areas under investigation. Manning's "n" values ranged from 0.03 in the channels to 0.05 in the overbanks.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1).

Starting water-surface elevations used in this study were determined from normal-depth calculations adjusted to field conditions.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the maps.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound flood plain management programs. Therefore, each Flood Insurance Study produces maps designed to assist communities in developing flood plain management measures.

4.1 Flood Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for flood plain management purposes. The 0.2 percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the 100- and 500-year flood plain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:480 and 1:24,000, with contour intervals of 2, 20, and 25 feet (References 5, 6, and 7).

At some locations where topographic maps did not supply adequate information, field surveys were made to allow better evaluation of flooding limits.

Flood plain boundaries are indicated on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year flood plain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, A3 through A8, A11, A12, A16, and A24); and the 500-year flood plain boundary corresponds to the boundary of areas of moderate flood hazards (Zone B).

In cases where the 100- and 500-year flood plain boundaries are close together, only the 100-year flood plain boundary has been shown. Small areas within the flood plain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

Approximate flood boundaries for this study were taken from the Los Angeles County Flood Insurance Study (Reference 1).

For the streams studied by approximate methods, only the 100-year flood plain boundary is shown.

4.2 Floodways

The floodway is the channel of a stream, plus any adjacent flood plain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights.

In this study, Cheseboro, Palo Comado, Medea, and Lindero Canyon channels have relatively high-velocity discharges which have historically eroded the main channel. This results in unpredictable meandering of floodflows and presents a severe hazard to structures located within the flood plain. In addition, flooding depths often preclude practical floodproofing of structures. For these reasons the 100-year flood plain is designated as the floodway.

5.0 INSURANCE APPLICATION

To establish actuarial insurance rates, data from the engineering study must be transformed into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors, and flood insurance zone designations for each flooding source studied in detail affecting the City of Agoura Hills.

5.1 Reach Determinations

Reaches are defined as sections of flood plain that have relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods. This difference may not have a variation greater than that indicated in the following table for more than 20 percent of the reach:

Average Difference Between 10- and 100-Year Floods	Variation
Less than 2 feet	0.5 foot
2 to 7 feet	1.0 foot
7.1 to 12 feet	2.0 feet
More than 12 feet	3.0 feet

The locations of the reaches determined for the flooding sources of Agoura Hills are shown on the Flood Profiles (Exhibit 1) and summarized in Table 2.

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FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1% (100-YEAR) FLOOD AND			FLOOD HAZARD FACTOR	ZONE	BASE FLOOD ELEVATION (FEET NGVD)[3]
		10% (10-YEAR)	2% (50-YEAR)	0.2% (500-YEAR)			
Lindero Canyon (Above Medea Creek)							
Reach 1	0001	-5.3	-1.5	15.8	055	A11	Varies - See Map
Reach 2	0001	-2.6	-0.8	8.8	025	A5	Varies - See Map
Lindero Canyon (Above Lake Lindero)							
Reach 3	0001	-2.4	-0.8	1.6	025	A5	Varies - See Map
Reach 4	0001	-2.0	-0.8	1.0	020	A4	Varies - See Map
Reach 5	0001	-3.1	-0.9	2.0	030	A6	Varies - See Map
Reach 6	0001	-4.2	-1.1	2.1	040	A8	Varies - See Map
Medea Creek (Above Mulholland Highway)							
Reach 1	0001	-5.8	-1.8	2.7	060	A12	Varies - See Map
Reach 2	0001	-13.6	-1.2	2.2	140	A24	Varies - See Map
Reach 3	0001	-8.0	-1.1	2.2	080	A16	Varies - See Map
Medea Creek (Above Ventura Freeway)							
Reach 4	0001	-3.7	-1.4	1.5	035	A7	Varies - See Map
Cheseboro Creek							
Reach 1	0002	-2.8	-0.7	1.2	030	A6	Varies - See Map
Palo Comado Creek							
Reach 1	0002	-1.4	-0.8	0.8	015	A3	Varies - See Map
Reach 2	0002	-2.2	-0.6	1.2	020	A4	Varies - See Map
Reach 3	0002	-2.9	-0.6	1.2	030	A6	Varies - See Map

[1]Flood Insurance Rate Map Panel [2]Weighted Average [3]Rounded to Nearest Foot

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

FLOOD INSURANCE ZONE DATA

LINDERO CANYON (ABOVE MEDEA CREEK)-LINDERO CANYON (ABOVE LAKE LINDERO)-MEDEA CREEK (ABOVE MULHOLLAND HIGHWAY)-MEDEA CREEK (ABOVE VENTURA FREEWAY)-CHESEBORO CREEK-PALO COMADO CREEK

5.2 Flood Hazard Factors

The Flood Hazard Factor (FHF) is used to establish relationships between depth and frequency of flooding in any reach. This relationship is then used with depth-damage relationships for various classes of structures to establish actuarial insurance rate tables.

The FHF for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations rounded to the nearest one-half foot, multiplied by 10, and shown as a three-digit code. For example, if the difference between water-surface elevations of the 10- and 100-year floods is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference between the 10- and 100-year flood water-surface elevations is greater than 10.0 feet, it is rounded to the nearest whole foot.

5.3 Flood Insurance Zones

Flood insurance zones and zone numbers are assigned based on the type of flood hazard and the FHF, respectively. A unique zone number is associated with each possible FHF, and varies from 1 for a FHF of 005 to a maximum of 30 for a FHF of 200 or greater.

Zone A:	Special Flood Hazard Areas inundated by the 100-year flood, determined by approximate methods; no base flood elevations shown or FHFs determined.
Zones A3 through A8, A11, A12, A16, and A24:	Special Flood Hazard Areas inundated by the 100-year flood; with base flood elevations shown, and zones subdivided according to FHFs.
Zone B:	Areas between the Special Flood Hazard Areas and the limits of the 500-year flood; areas that are protected from the 100- or 500-year floods by dike, levee, or other local water-control structure; areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; and areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.
Zone C:	Areas of minimal flood hazard; not subdivided.

In this study, the channels studied by detailed methods in which the flood hazard is within the channel has been designated "500-Year Flood Contained in Channel."

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5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for Agoura Hills is, for insurance purposes, the principal product of the Flood Insurance Study. This map contains the official delineation of flood insurance zones and base flood elevations. Base flood elevation lines show the locations of the expected whole-foot water-surface elevation of the base (100-year) flood. The base flood elevations and zone numbers are used by insurance agents, in conjunction with structure elevations and characteristics, to assign actuarial insurance rates to structures and contents insured under the NFIP.

6.0 OTHER STUDIES

This study was prepared from data used in the preparation of the Flood Insurance Study for Los Angeles County, California, published in December 1980 (Reference 1). Currently, areas of Los Angeles County are being revised by FEMA and this study is in agreement with those revisions.

A Flood Insurance Study is currently being prepared for Ventura County, California (Reference 8), and is in agreement with this study.

7.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, Building 105, Presidio of San Francisco, San Francisco, California 94129.

8.0 BIBLIOGRAPHY AND REFERENCES

1. Federal Emergency Management Agency, Flood Insurance Study, Los Angeles County, California, 1980

2. Los Angeles County Flood Control District, Flood Overflow Maps, Los Angeles County, Scale 1:24,000, updated periodically

3. U.S. Water Resources Council, "Guidelines for Determining Flood Flow Frequency," Bulletin 17, March 1976

4. Los Angeles County Flood Control District, Engineering Methodology for Flood Insurance Studies, November 1977

5. Los Angeles County Flood Control District, Topographic Mapping for Lindero Canyon, Scale 1:480, Contour Interval 2 feet, 1968

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6. Los Angeles County Flood Control District, Topographic Mapping for Medea Creek, Scale 1:480, Contour Interval 2 feet, 1968

7. U.S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 20 feet: Thousand Oaks, California (1967); Scale 1:24,000, Contour Interval 25 feet: Calabasas, California

8. Federal Emergency Management Agency, Flood Insurance Study, Ventura County, California, Unincorporated Areas, unpublished

City of Agoura Hills, Agoura Hills Draft General Plan, no date

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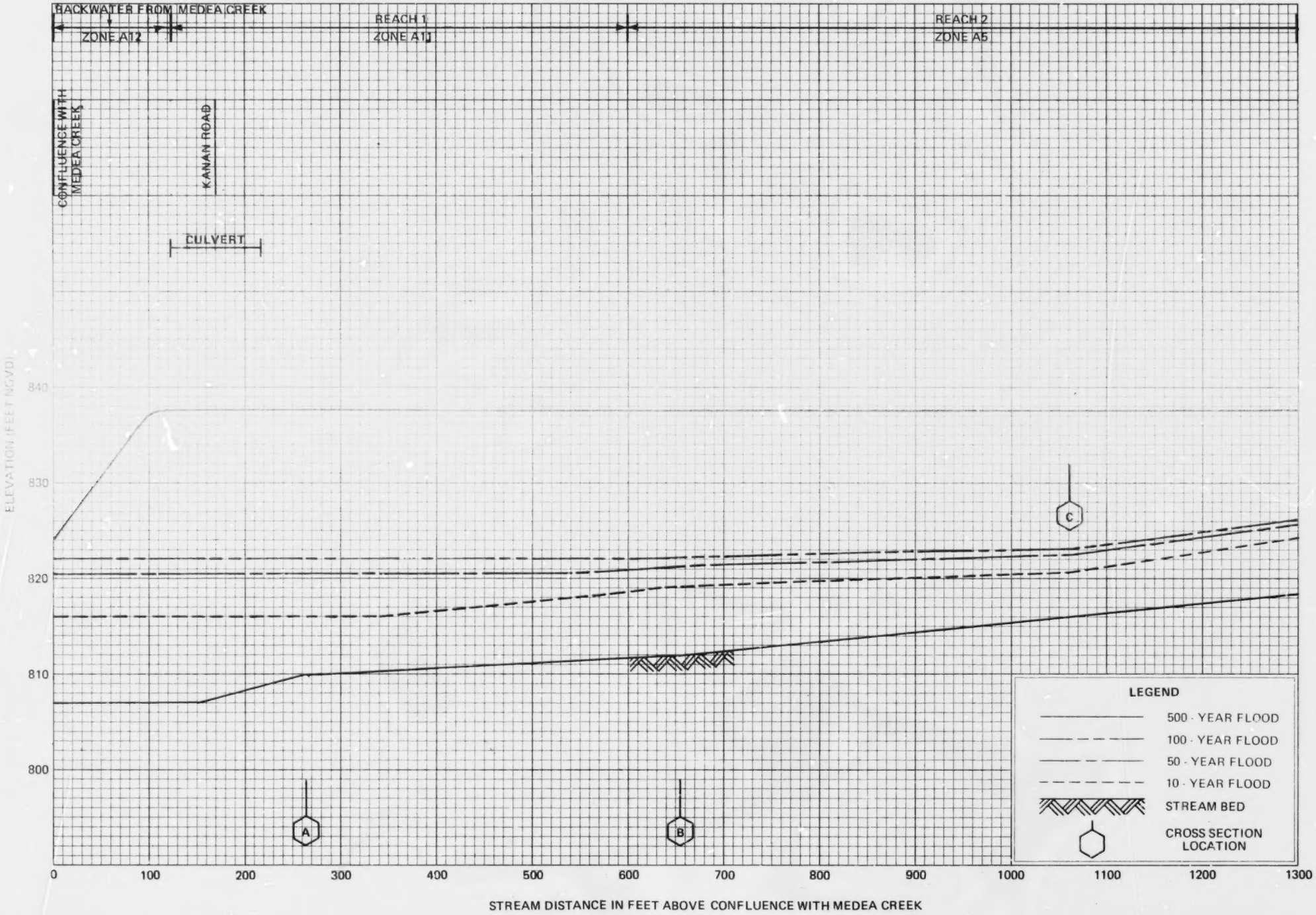

FLOOD PROFILES

LINDERO CANYON (ABOVE MEDEA CREEK)

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

01P

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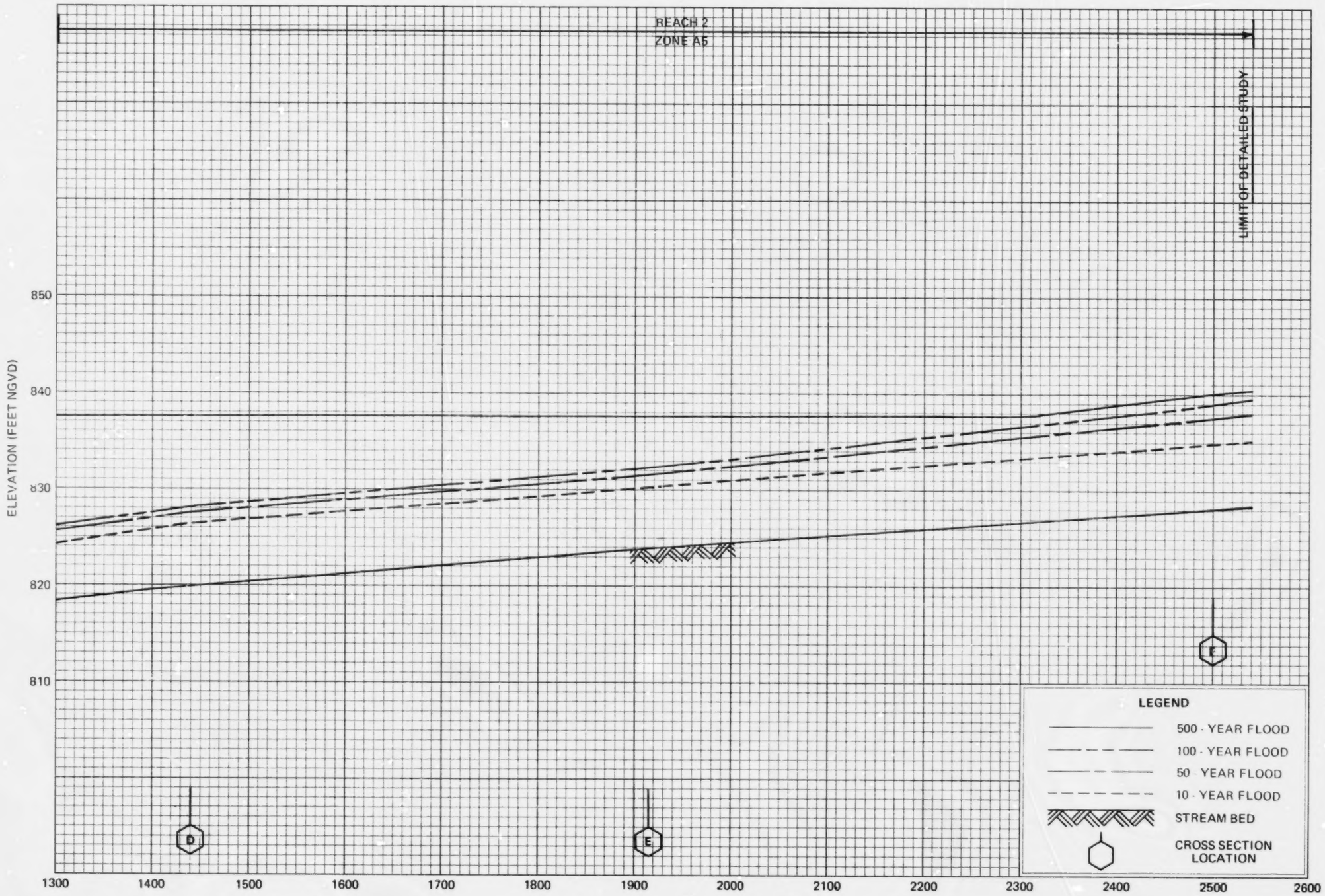

FLOOD PROFILES

LINDERO CANYON (ABOVE MEDEA CREEK)

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

02P

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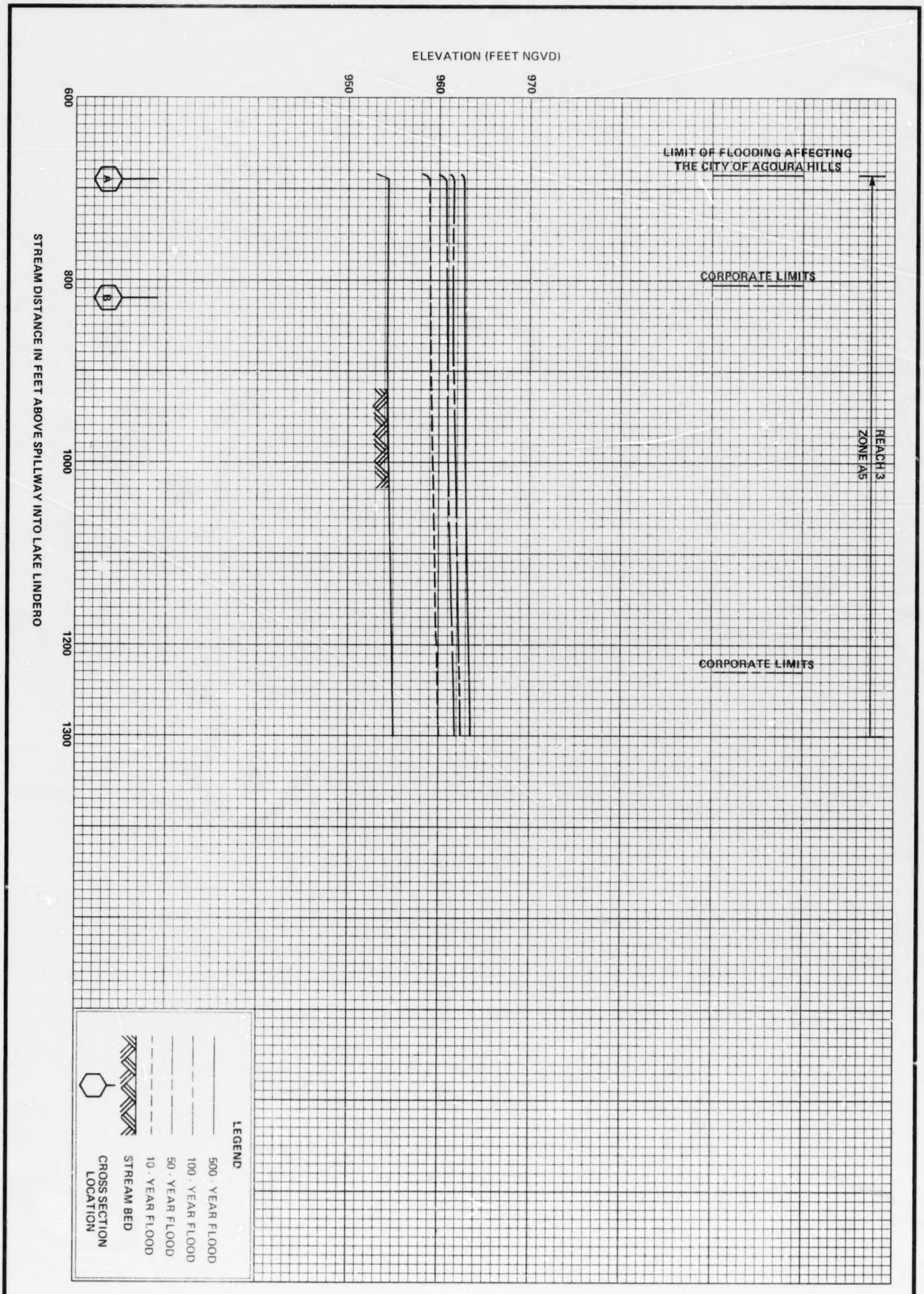

03P	FEDERAL EMERGENCY MANAGEMENT AGENCY CITY OF AGOURA HILLS, CA (LOS ANGELES CO.)	**FLOOD PROFILES** LINDERO CANYON (ABOVE LAKE LINDERO)

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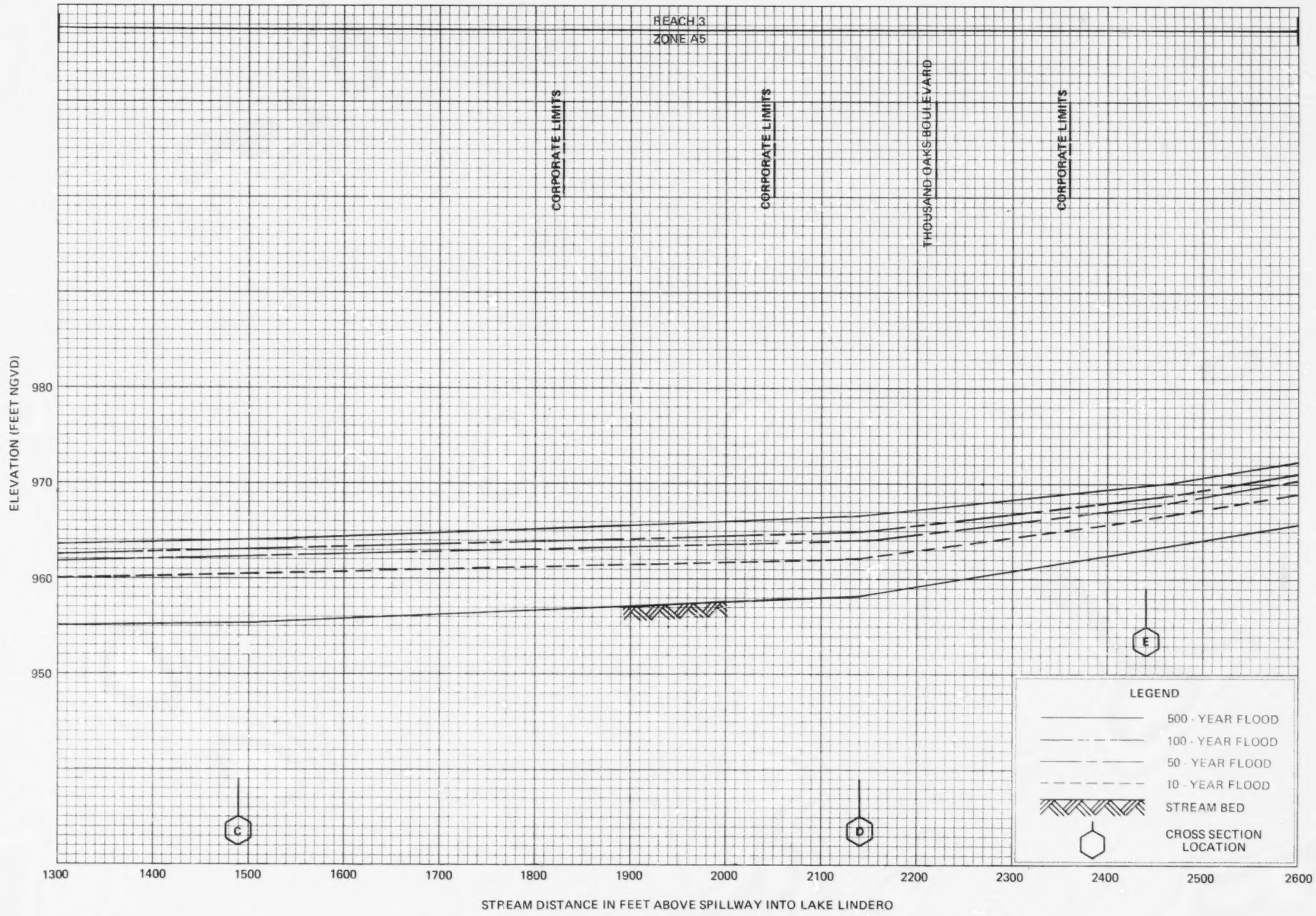

FLOOD PROFILES

LINDERO CANYON (ABOVE LAKE LINDERO)

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

04P

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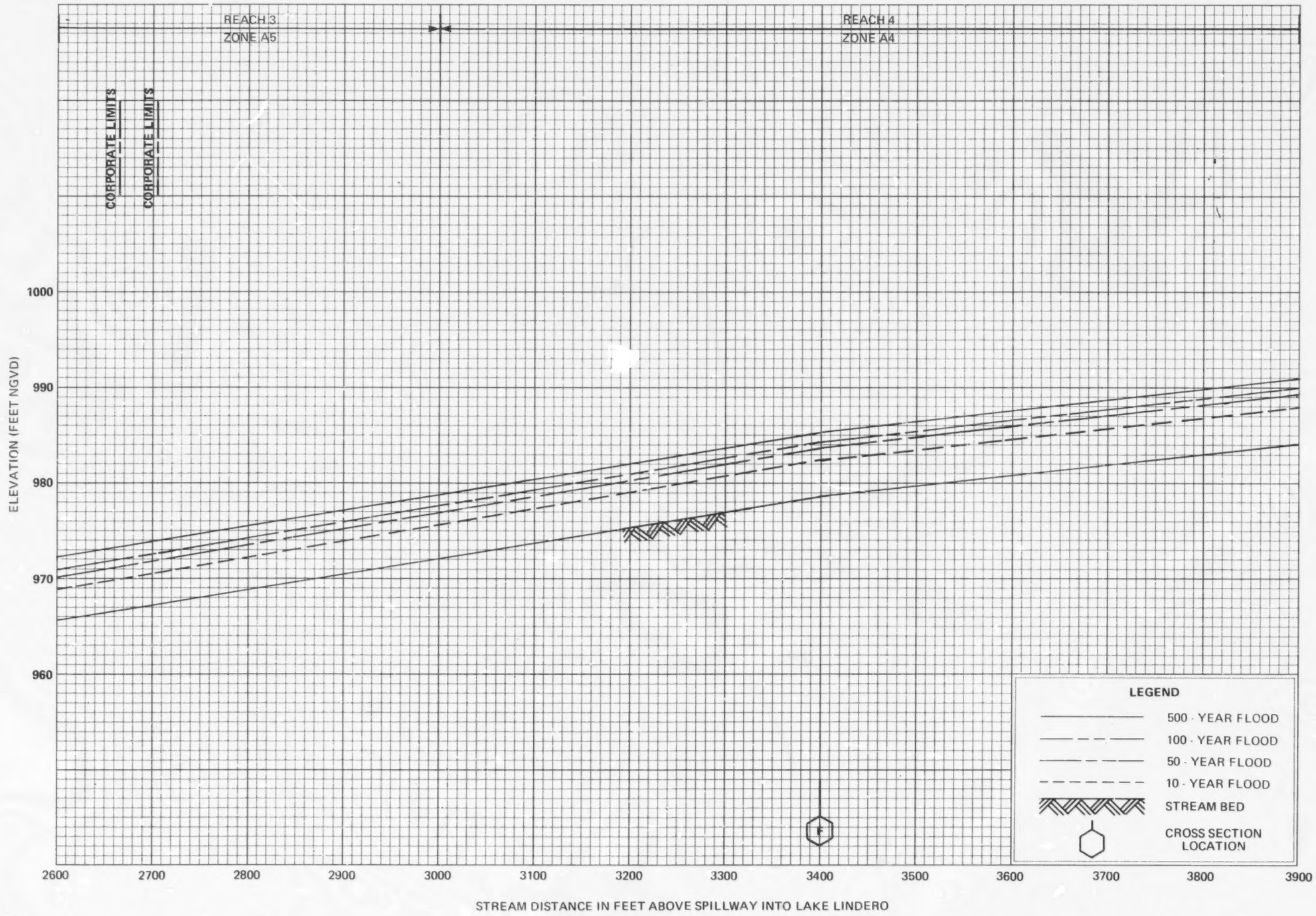

FLOOD PROFILES

LINDERO CANYON (ABOVE LAKE LINDERO)

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

05P

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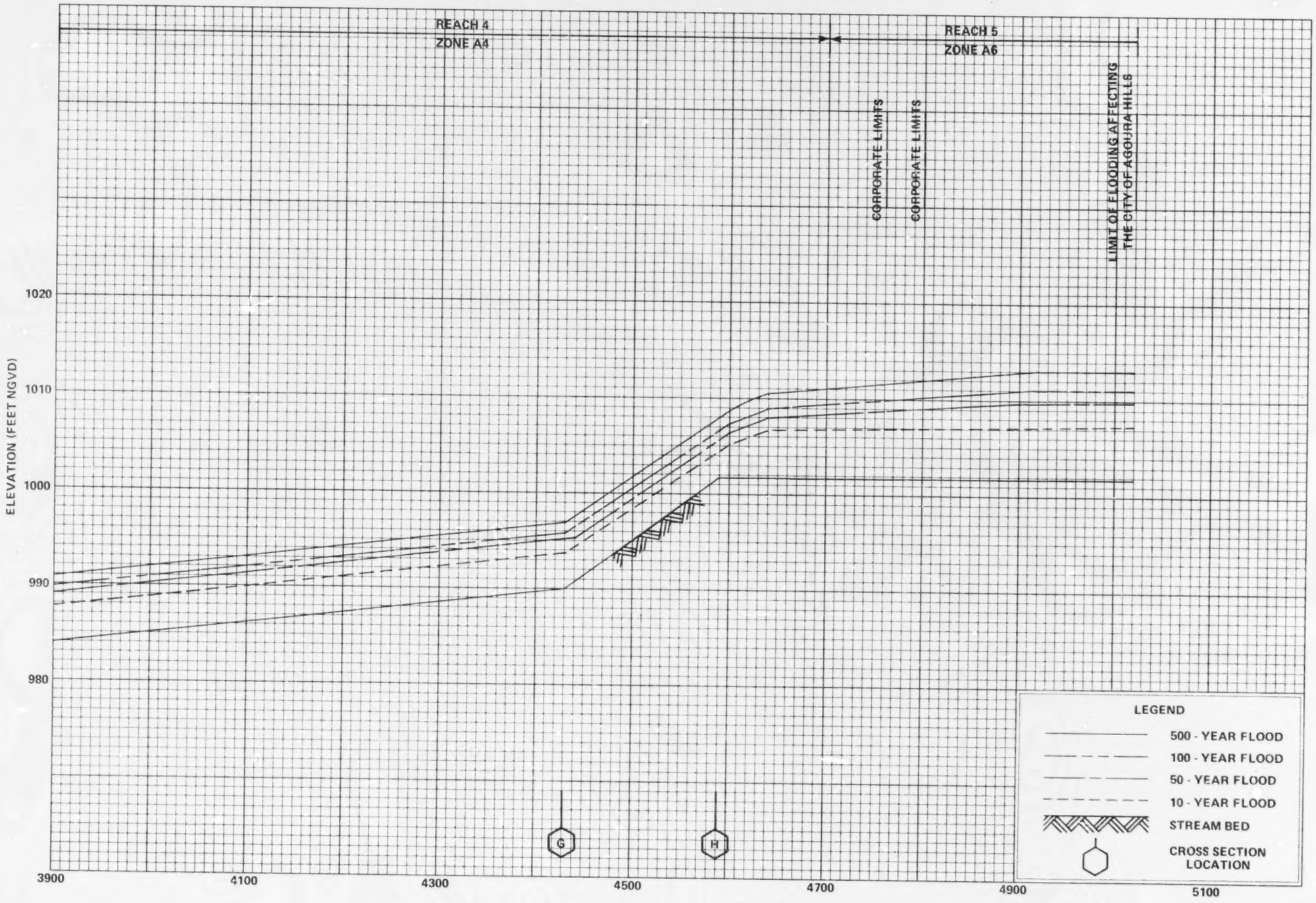

FLOOD PROFILES

LINDERO CANYON (ABOVE LAKE LINDERO)

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

06P

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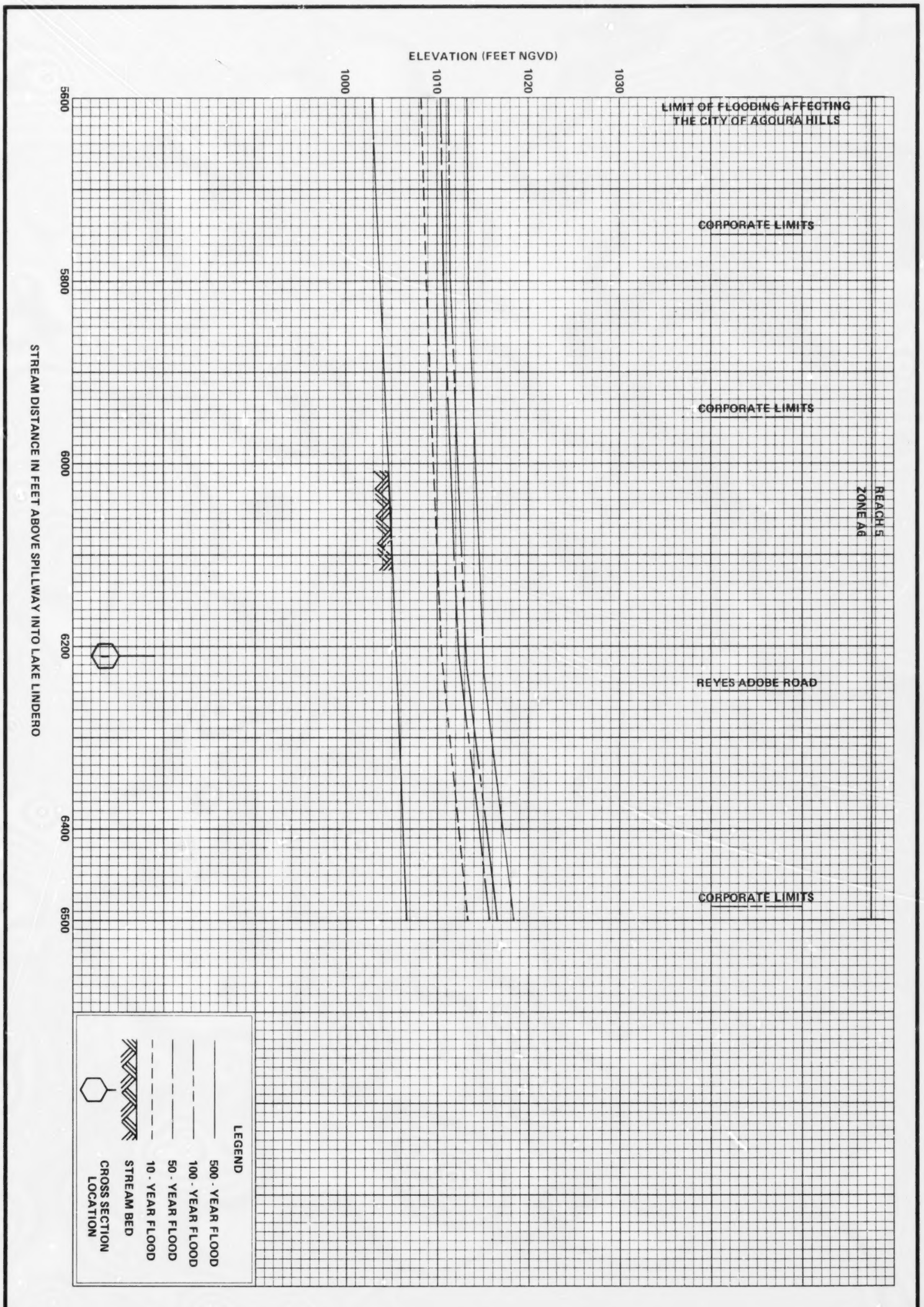

07P	FEDERAL EMERGENCY MANAGEMENT AGENCY CITY OF AGOURA HILLS, CA (LOS ANGELES CO.)	FLOOD PROFILES LINDERO CANYON (ABOVE LAKE LINDERO)

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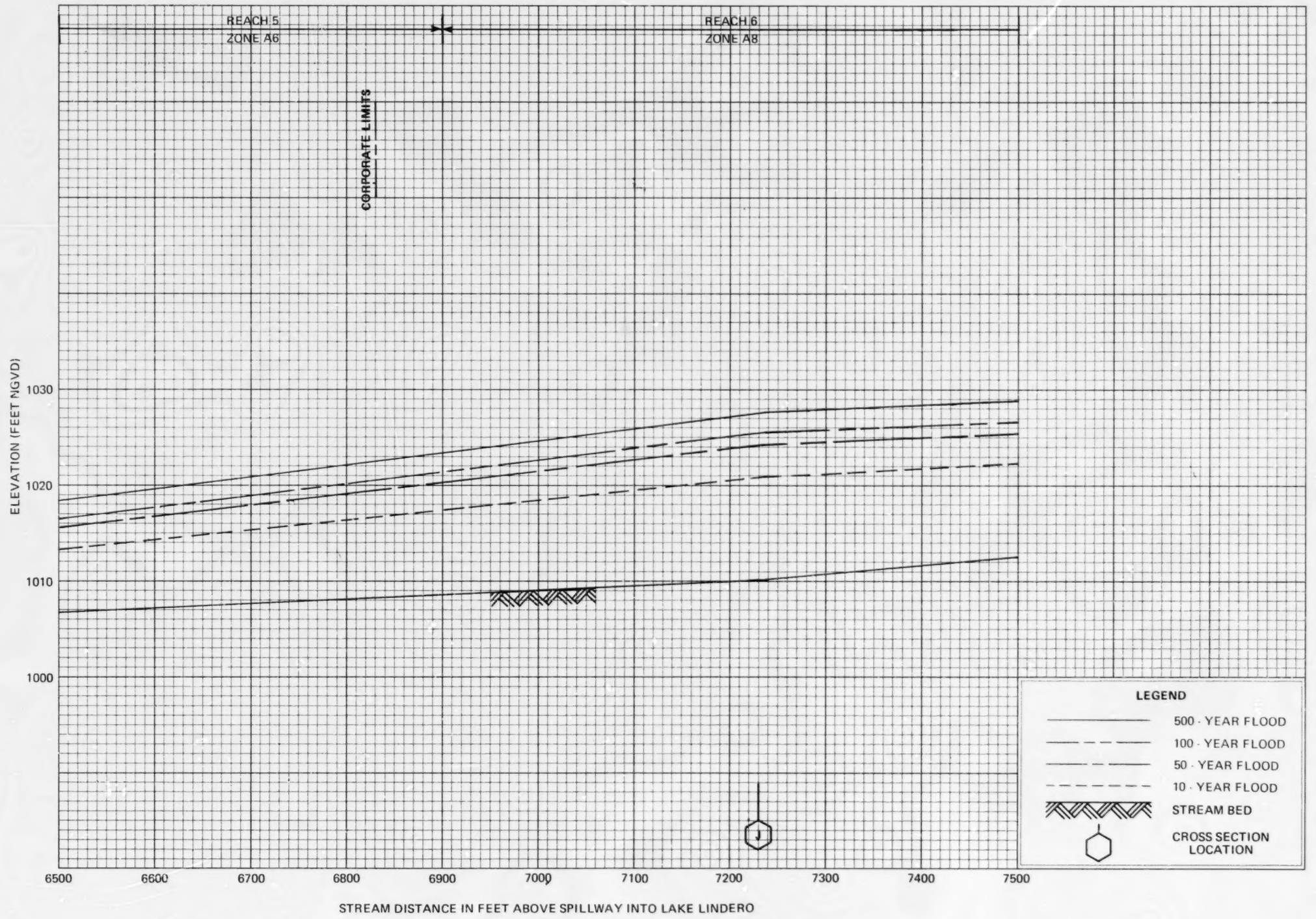

FLOOD PROFILES

LINDERO CANYON (ABOVE LAKE LINDERO)

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

08P

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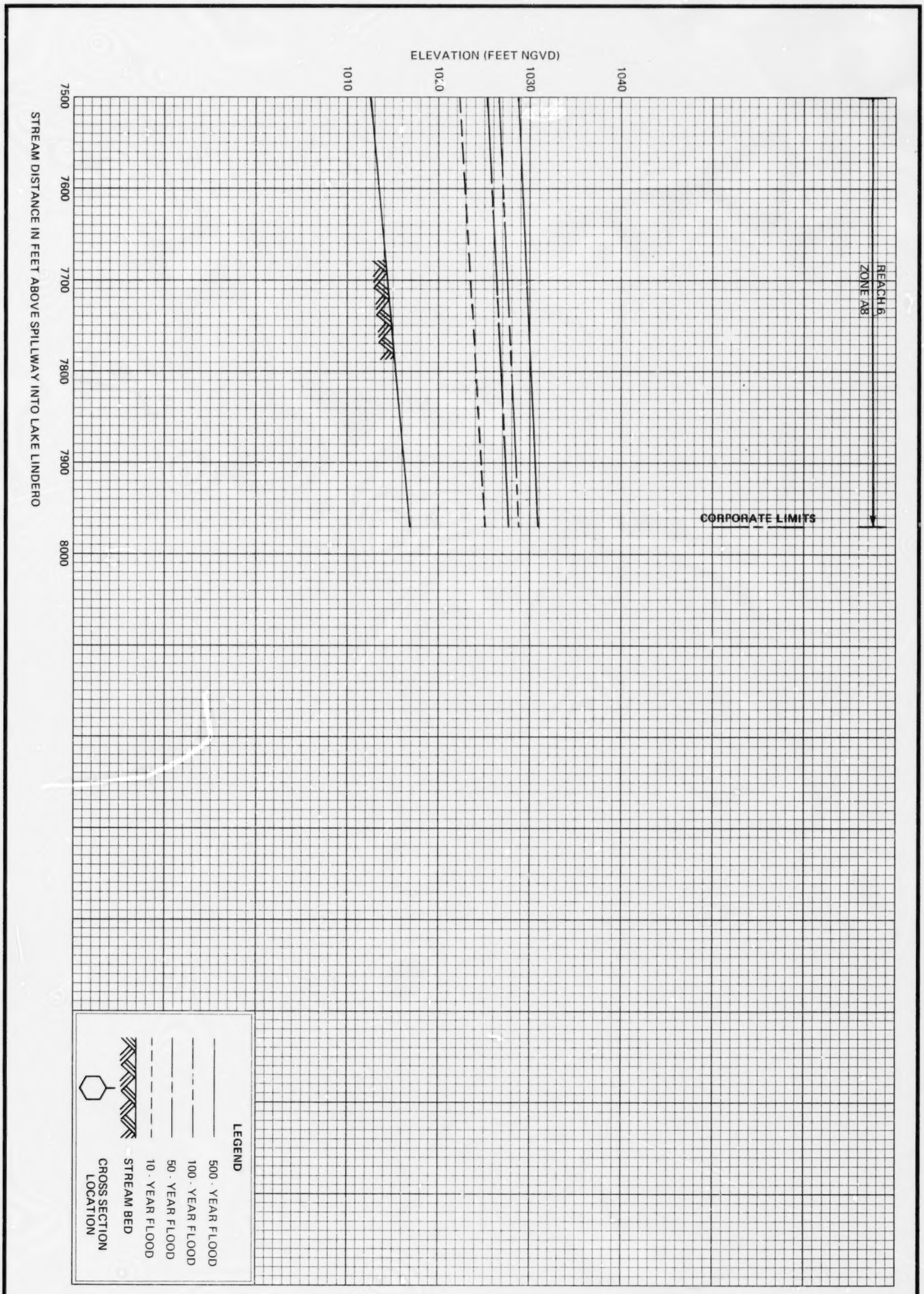

22

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09P

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

FLOOD PROFILES

LINDERO CANYON (ABOVE LAKE LINDERO)

FLOOD PROFILES

MEDEA CREEK (ABOVE MULHOLLAND HIGHWAY)

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

10P

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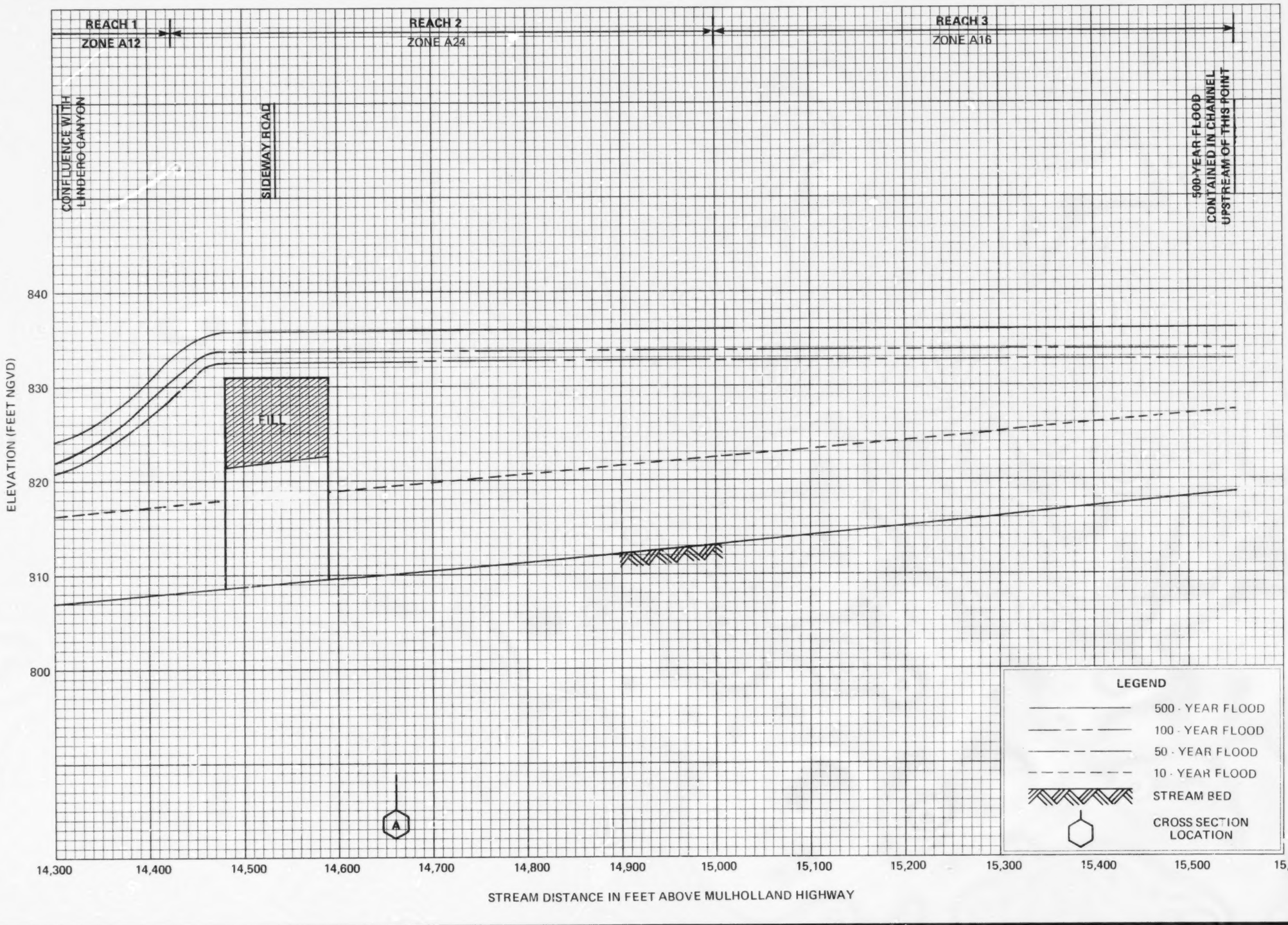

FLOOD PROFILES

MEDEA CREEK (ABOVE MULHOLLAND HIGHWAY)

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

11P

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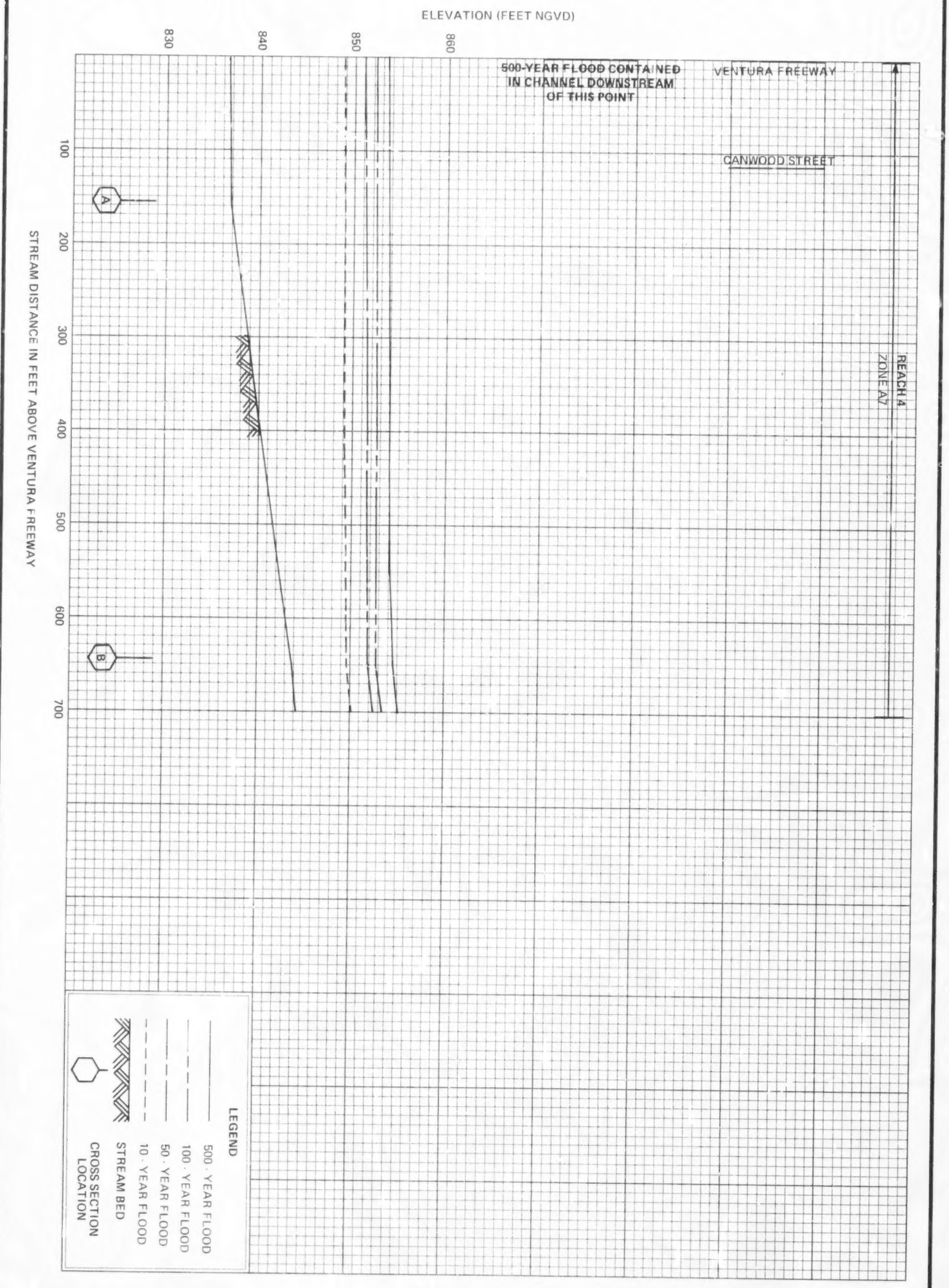

12P	FEDERAL EMERGENCY MANAGEMENT AGENCY CITY OF AGOURA HILLS, CA (LOS ANGELES CO.)	FLOOD PROFILES MEDEA CREEK (ABOVE VENTURA FREEWAY)

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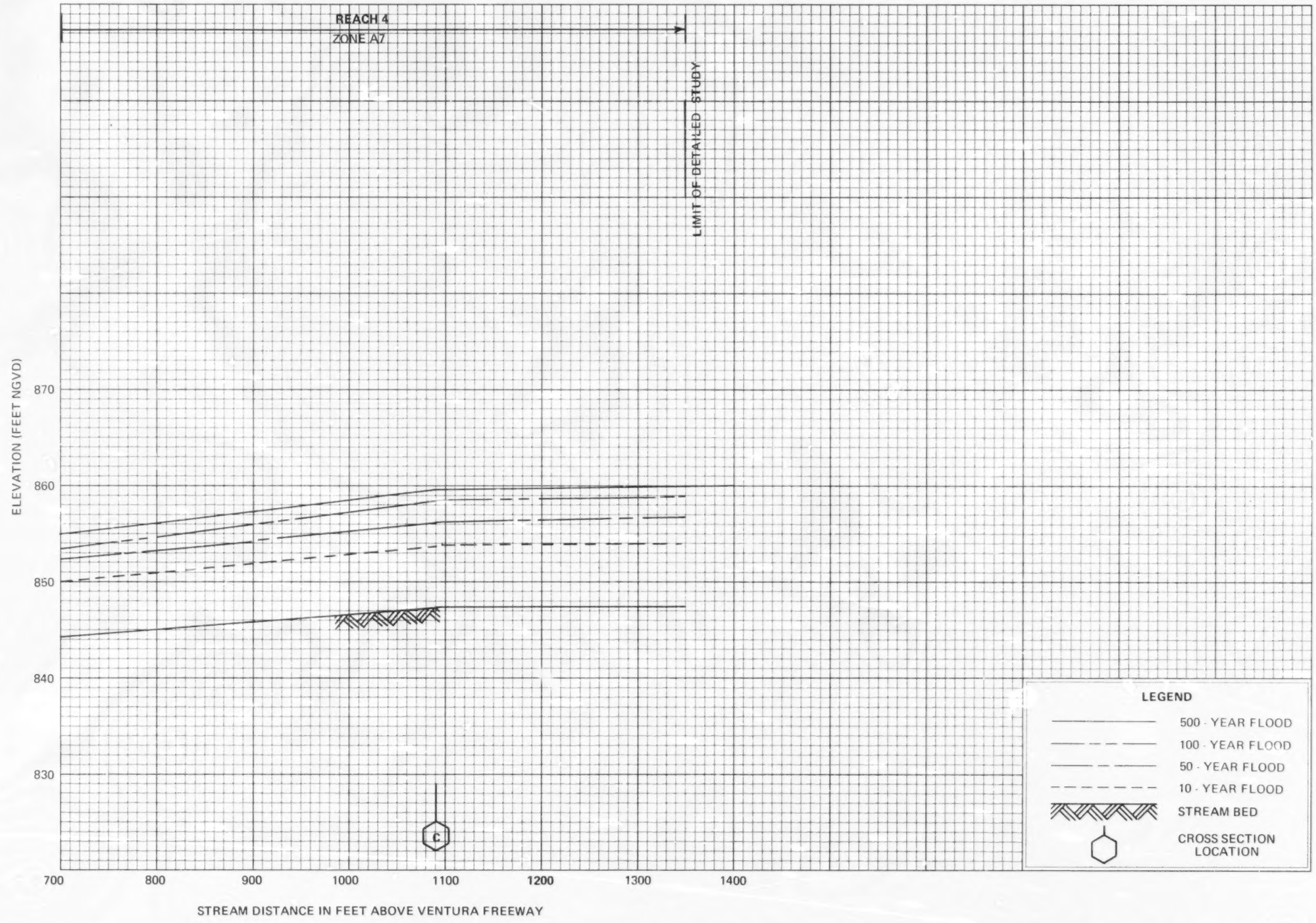

FLOOD PROFILES

MEDEA CREEK (ABOVE VENTURA FREEWAY)

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

13P

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REACH 1
ZONE A6

LIMIT OF DETAILED STUDY
DRIVER AVENUE

ELEVATION (FEET NGVD)

920
910
900
890

0 100 200 300 400 500 600 700 800 900 1000 1100

STREAM DISTANCE IN FEET ABOVE DRIVER AVENUE

A

LEGEND

- 500 - YEAR FLOOD
- 100 - YEAR FLOOD
- 50 - YEAR FLOOD
- 10 - YEAR FLOOD
- STREAM BED
- CROSS SECTION LOCATION

FLOOD PROFILES

CHESEBORO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

14P

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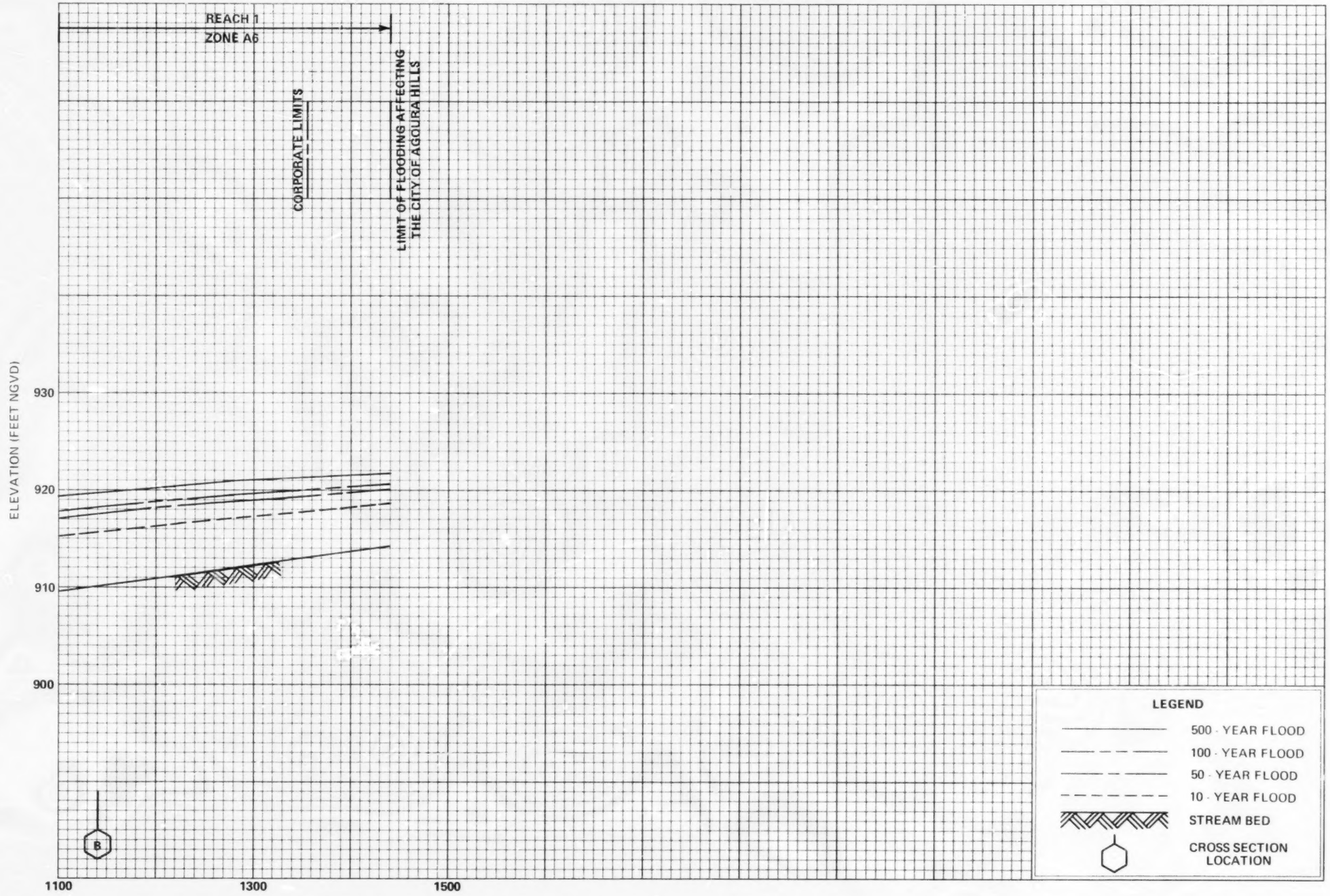

FLOOD PROFILES

CHESEBORO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

15P

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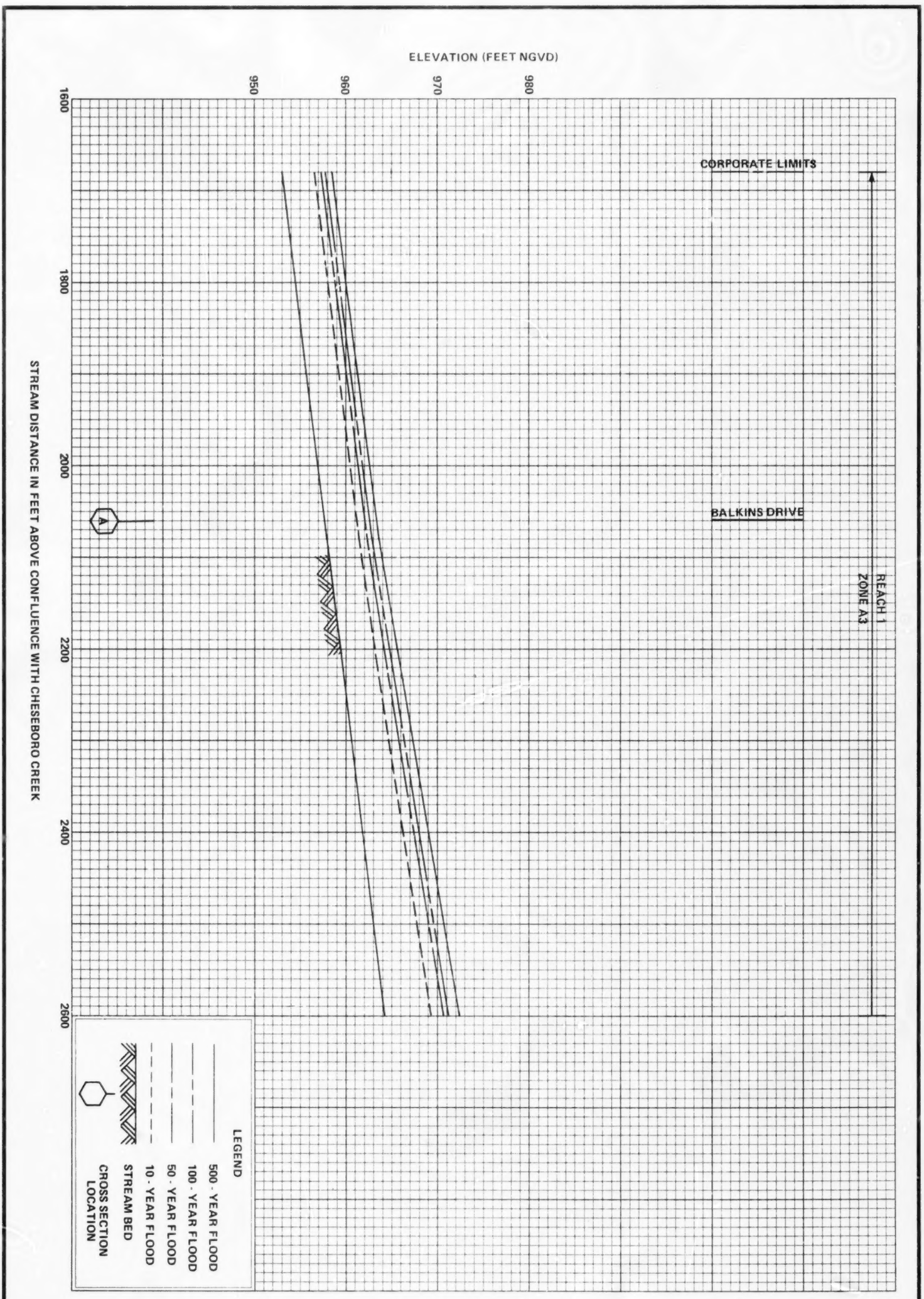

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

FLOOD PROFILES

PALO COMADO CREEK

16P

19

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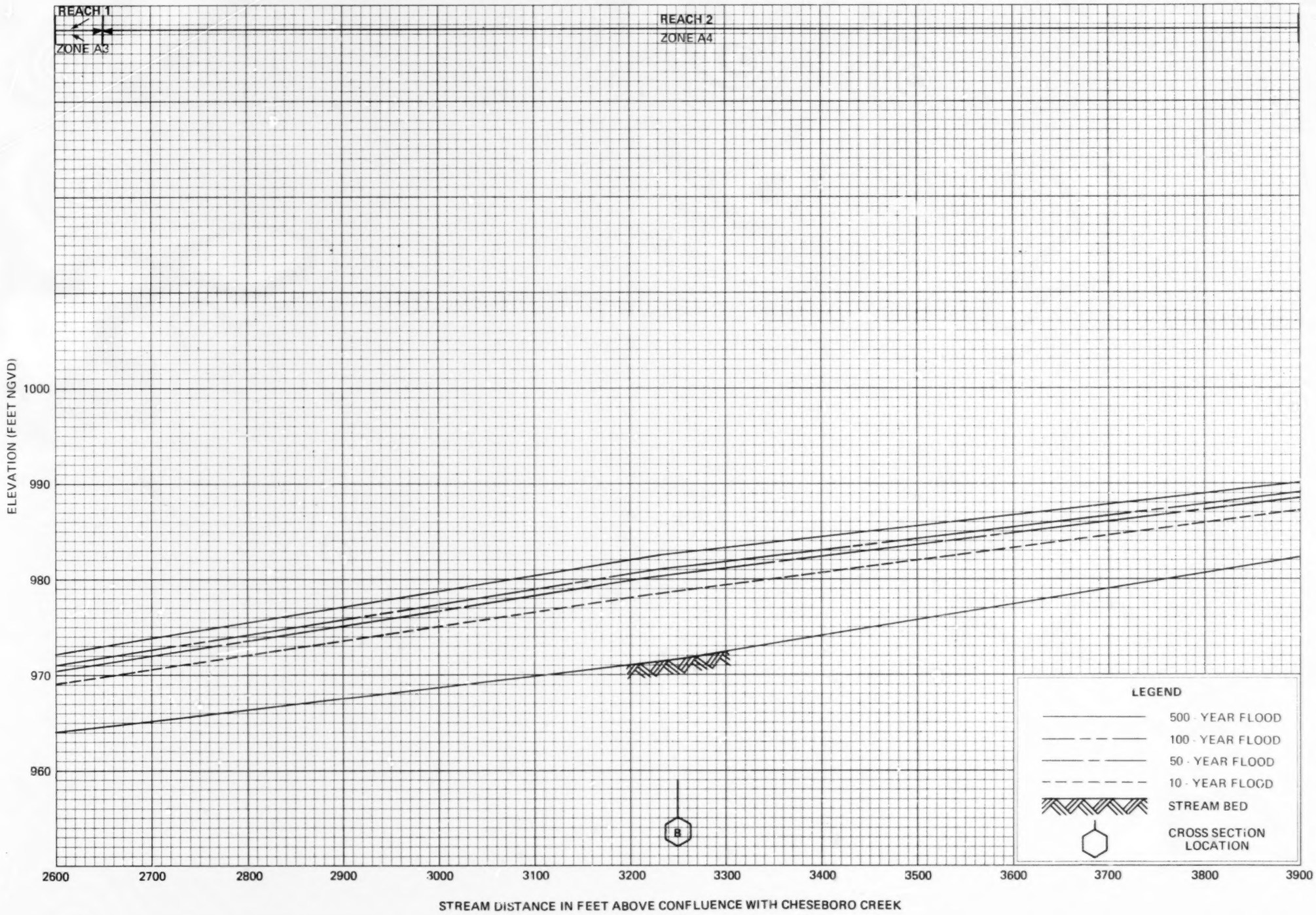

FLOOD PROFILES

PALO COMADO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

17P

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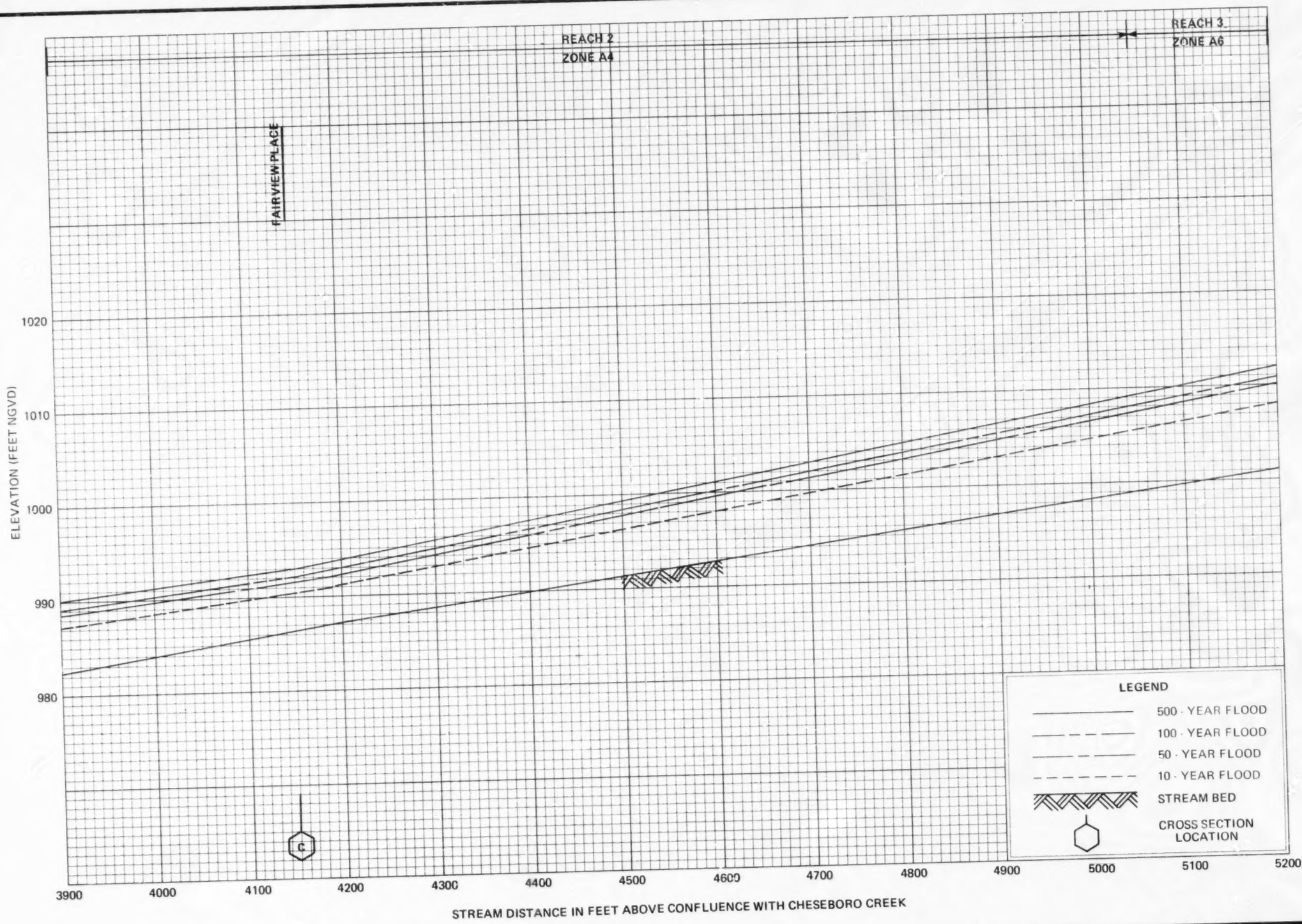

FLOOD PROFILES

PALO COMADO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

18P

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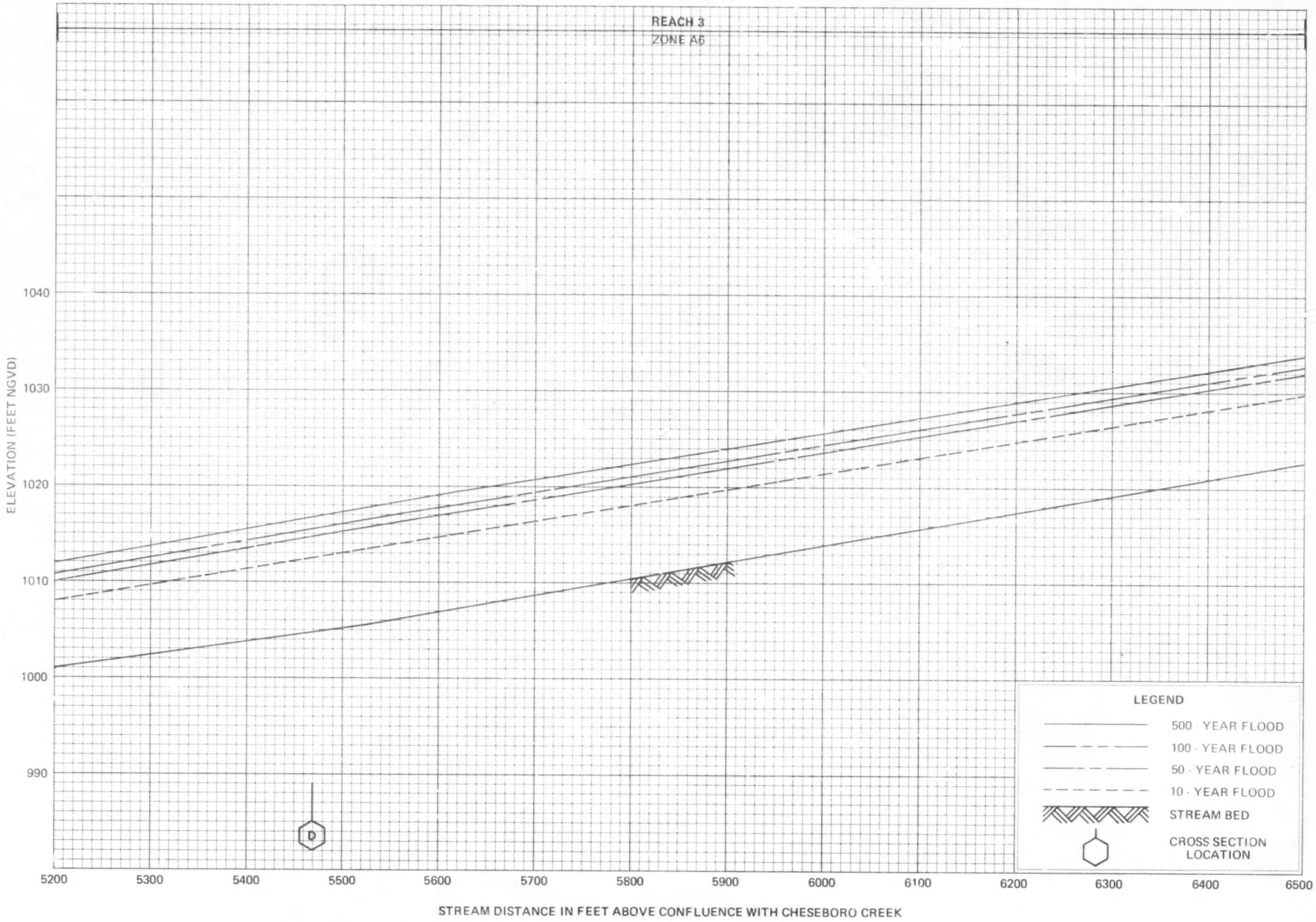

FLOOD PROFILES

PALO COMADO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

19P

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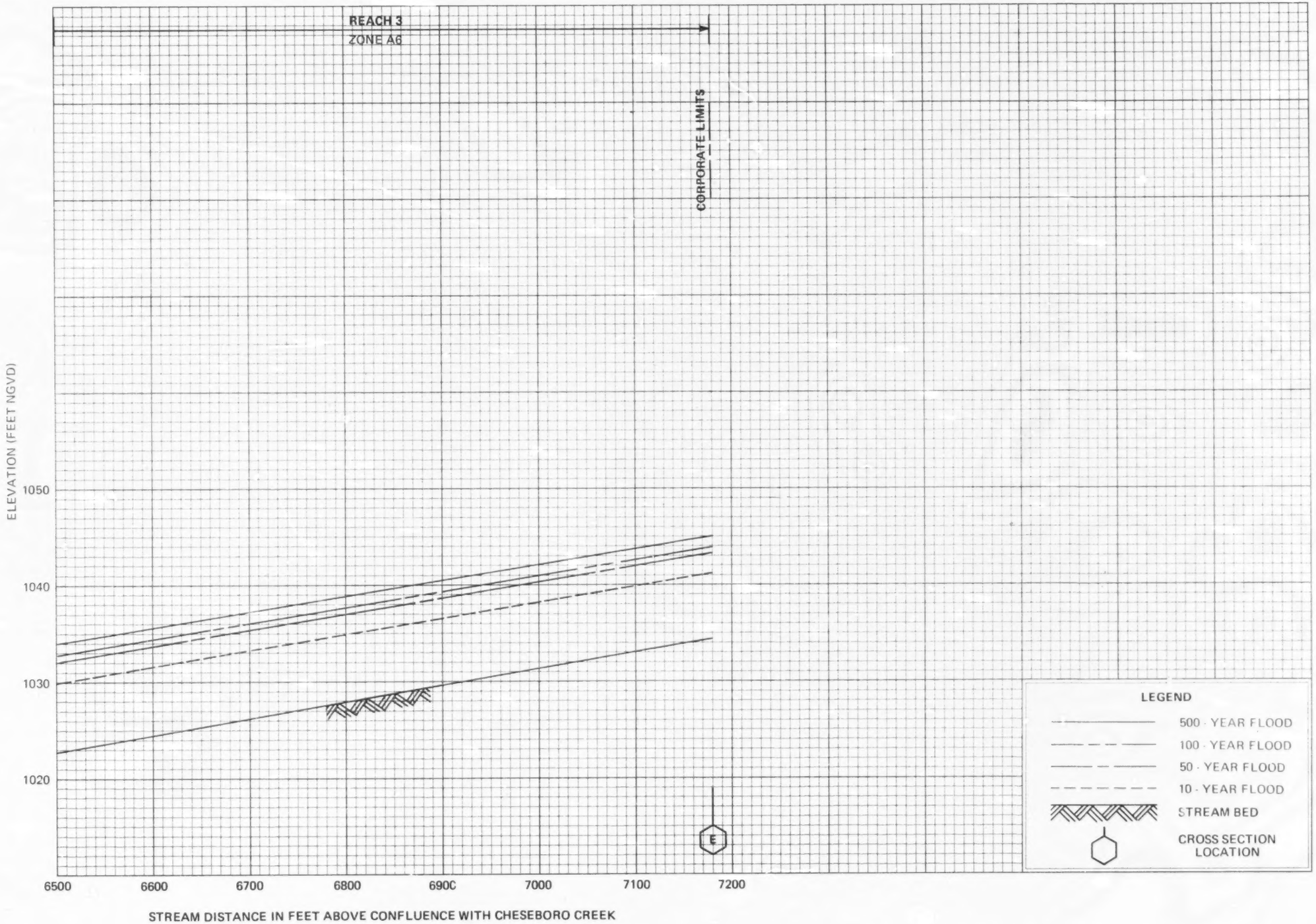

FLOOD PROFILES

PALO COMADO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF AGOURA HILLS, CA
(LOS ANGELES CO.)

20P

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